Appl. No. 09/759,864
Atty. Docket No. 7917M
Amdt. dated 10/20/2003
Reply to Office Action of 06/18/2003
Customer No. 27752

AMENDMENTS TO THE CLAIMS

1. (Previously presented) A system for controlling plant and flower moisture transpiration, said system comprising:

a) a first component in the form of a solution, said solution applied to the surface of a plant or flower exposed to air, said first component comprising:

i) a polymer having a water vapor transfer rate of less than 10g-mm/m^2-day and a glass transition temperature, T_g, greater than about 30° C;

ii) the balance carriers and adjunct ingredients;

wherein said polymer is in the form of a microemulsion having a particle size less than 400 nanometers;

further wherein said glass transition temperature, T_g, is approximated using the following formula:

$$\frac{1}{T_{Co}} = \frac{W_1}{T_1} + \frac{W_2}{T_2} + \ldots\ldots \frac{W_n}{T_n}$$

wherein W_1 represents the weight portion of monomer 1, W_2 represents the weight portion of monomer 2, T_1 the glass transition temperature of the polymerized monomer 1 in °K, T_2 the glass transition temperature of the polymerized monomer 2 in °K, T_{Co}, the glass transition temperature of the copolymer in °K and;

b) a second component comprising:

i) a source of energy for the plant or flower being treated;

ii) an antimicrobial;

wherein said second component is dissolved in water to form a solution and into which solution is placed the plant or flower to be preserved.

2. (Original) A system according to Claim 1 wherein said microemulsion has a particle size less than 200 nanometers.

3. (Original) A system according to Claim 2 wherein said microemulsion has a particle size less than 100 nanometers.

4. (Original) A system according to Claim 1 wherein said polymer has a water vapor transfer rate of less than 7 g-mm/m^2-day.

5. (Original) A system according to Claim 4 wherein said polymer has a water vapor transfer rate of less than 5 g-mm/m^2-day.

6. (Original) A system according to Claim 1 wherein said polymer has a glass transition temperature, T_g, greater than about 35 °C.

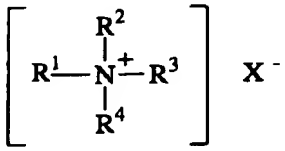
7. (Original) A system according to Claim 6 wherein said polymer has a glass transition temperature, T_g, greater than about 40 °C.

8. (Original) A system according to Claim 1 wherein said first component carrier comprises water and an alcohol selected from the group consisting of methanol, ethanol, isopropanol, n-propanol, ethylene glycol, propylene glycol, and mixtures thereof; wherein the ratio of water to said alcohol is from about 99:1 to about 1:99.

9. (Original) A system according to Claim 1 wherein said first component adjunct ingredients are selected from the group consisting of fragrance raw materials, pro-fragrances, pro-accords, dye, colorants, and mixtures thereof.

10. (Original) A system according to Claim 1 wherein said second component source of energy is selected from the group consisting of one or more carbohydrates, plant or flower digestible polysaccharides, and mixtures thereof.

11. (Original) A system according to Claim 1 wherein said antimicrobial has the formula:



wherein R^1 and R^2 are each independently C_8-C_{20} linear or branched alkyl, benzyl, and mixtures thereof; R^3 and R^4 are each independently C_1-C_4 alkyl, and mixtures thereof; X is an anion of sufficient charge to provide electronic neutrality.

12. (Original) A system according to Claim 11 wherein R^1 and R^2 are each C_{12} alkyl; R^3 and R^4 are each methyl; X is chlorine.

13. (Original) A system according to Claim 1 wherein said second component further comprises a calcium ion sequestrant.

14. (Previously presented) A system for controlling plant and flower moisture transpiration, said system comprising:

a) a first component in the form of a solution, said solution applied to the surface of a plant or flower exposed to air, said first component comprising:

i) from about 0.01% to about 20% by weight, of a polymer such that the water vapor transfer rate and glass transition temperature, T_g, of said polymer define a point to the left of a line having the equation:

$y = -0.068443x + 10$

wherein the ordinate, x, is the glass transition temperature and the abscissa, y, is the water vapor transfer rate of said polymer;

ii) the balance carriers and adjunct ingredients;

wherein said glass transition temperature is approximated using the following formula:

$$\frac{1}{T_{Co}} = \frac{W_1}{T_1} + \frac{W_2}{T_2} + \ldots\ldots \frac{W_n}{T_n}$$

wherein W_1 represents the weight portion of monomer 1, W_2 represents the weight portion of monomer 2, T_1 the glass transition temperature of the polymerized monomer 1 in °K, T_2 the glass transition temperature of the polymerized monomer 2 in °K, T_{Co}, the glass transition temperature of the copolymer in °K; and

b) a second component comprising:

i) a source of energy for the plant or flower being treated;

ii) an antimicrobial;

wherein said second component is dissolved in water to form a solution and into which solution is placed the plant or flower to be preserved.

15. (Original) A system according to Claim 14 wherein said polymer comprises the reaction products of mono-carboxylic acids and the esters, amides, and anhydrides thereof comprising one olefin moiety.

16. (Original) A system according to Claim 15 wherein said mono-carboxylic acids are sel cted from the group consisting of acrylic acid, methacrylic acid, crotonic acid, and mixtures thereof.

17. (Original) A system according to Claim 14 wherein said esters of mono-carboxylic acids are selected from the group consisting of n-propyl methacrylate, n-butyl methacrylate, methyl methacrylate, n-butyl acrylate, 2-(N,N-dimethylamino)ethyl methacrylate, and mixtures thereof.

18. (Original) A system according to Claim 14 wherein said polymer comprises the reaction products of mono-carboxylic acids and the esters, amides, and anhydrides thereof comprising one olefin moiety, polycarboxylic acids and the esters, amides, and anhydrides thereof comprising one olefin moiety.

19. (Original) A system according to Claim 18 wherein said polycarboxylic acids are selected from the group consisting of oxalic acid, succinic acid, tartaric acid, itaconic acid, maleic acid, and mixtures thereof; and the esters, amides, and anhydrides thereof.

20. (Original) A system according to Claim 14 wherein said solution of said polymer of component one forms a microemulsion having a particle size less than 400 nanometers.

21. (Original) A system according to Claim 20 wherein said solution of said polymer of component one forms a microemulsion having a particle size less than 200 nanometers.

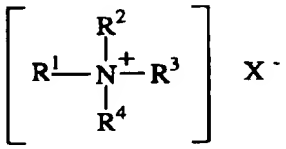
22. (Original) A system according to Claim 21 wherein said solution of said polymer of component one forms a microemulsion having a particle size less than 100 nanometers.

23. (Original) A system according to Claim 14 wherein said first component carrier comprises water and an alcohol selected from the group consisting of methanol, ethanol, isopropanol, n-propanol, ethylene glycol, propylene glycol, and mixtures thereof; wherein the ratio of water to said alcohol is from about 99:1 to about 1:99.

24. (Original) A system according to Claim 14 wherein said first component adjunct ingredients are selected from the group consisting of fragrance raw materials, pro-fragrances, pro-accords, dye, colorants, and mixtures th reof.

25. (Original) A system according to Claim 14 wherein said second component source of energy is selected from the group consisting of one or more carbohydrates, plant or flower digestible polysaccharides, and mixtures thereof.

26. (Original) A system according to Claim 14 wherein said antimicrobial has the formula:



wherein R^1 and R^2 are each independently C_8-C_{20} linear or branched alkyl, benzyl, and mixtures thereof; R^3 and R^4 are each independently C_1-C_4 alkyl, and mixtures thereof; X is an anion of sufficient charge to provide electronic neutrality.

27. (Original) A system according to Claim 26 wherein R^1 and R^2 are each C_{12} alkyl; R^3 and R^4 are each methyl; X is chlorine.

28. (Original) A system according to Claim 14 wherein said second component further comprises a calcium ion sequestrant.